Volunteer Lake Assessment Program Individual Lake Reports

LOON POND, GILMANTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	1,088	**Max. Depth (m):**	13.6	**Flushing Rate (yr^{1})**	0.6
Surface Area (Ac.):	121	**Mean Depth (m):**	7	**P Retention Coef:**	0.69
Shore Length (m):	3,100	**Volume (m^3):**	3,436,000	**Elevation (ft):**	904

TROPHIC CLASSIFICATION

Year	Trophic class
1980	MESOTROPHIC
1996	MESOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

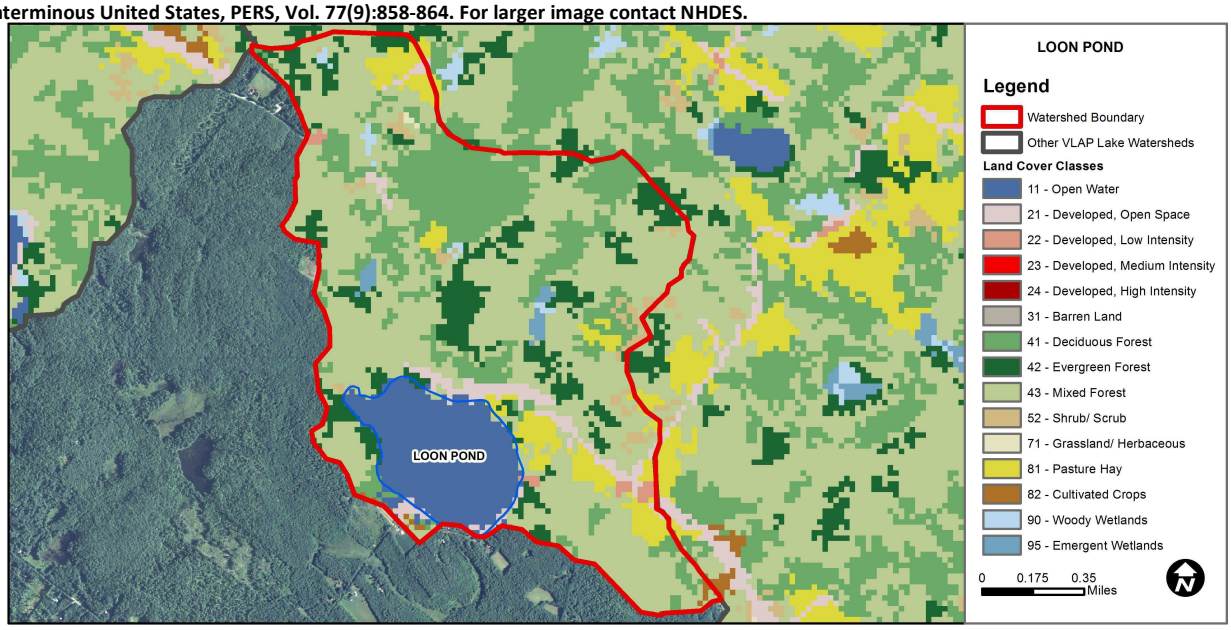
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Very Good	>5 samples and median is < 1/2 threshold.
Primary Contact Recreation	E. coli	No Data	No Data for this parameter.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

LOON LAKE - LOON LAKE BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	11.2	Barren Land	0	Grassland/Herbaceous	0.08
Developed-Open Space	3.24	Deciduous Forest	18.53	Pasture Hay	5.41
Developed-Low Intensity	0.6	Evergreen Forest	10.82	Cultivated Crops	0.31
Developed-Medium Intensity	0	Mixed Forest	47	Woody Wetlands	0.5
Developed-High Intensity	0	Shrub-Scrub	1.65	Emergent Wetlands	0.74

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
LOON POND, GILMANTON, NH
2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphics)*

- **CHLOROPHYLL-A:** Chlorophyll levels remained low in 2013 and were much less than the state median. Historical trend analysis indicates relatively stable chlorophyll with moderate variability between years.
- **CONDUCTIVITY/CHLORIDE:** Deep spot and Outlet conductivity and chloride levels were slightly greater than the state medians. Bertrand Brook and Varney Brook conductivity and chloride levels were approximately equal to the state medians. Gardner Cove Inlet conductivity and chloride were slightly elevated and greater than the state medians, particularly in August during low flow conditions. Historical trend analysis indicates relatively stable epilimnetic conductivity with high variability between years.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low in July and August and epilimnetic phosphorus was much less than the state median. Historical trend analysis indicates stable epilimentic phosphorus with low variability between years. Bertrand Brook and Outlet phosphorus levels were low. Gardner Cove Inlet and Varney Brook phosphorus levels were elevated in July follow significant storm event prior to sampling.
- **TRANSPARENCY:** Transparency was high in July, decreased in August, and the 2013 average was much better than the 2012 average and the state median. Historical trend analysis indicates relatively stable transparency with moderate variability between years.
- **TURBIDITY:** Deep spot and tributary turbidity were low except for Gardner Cove Inlet where the turbidity was elevated in July following significant storm event and August during low flow conditions.
- **PH:** Deep spot and tributary pH were generally within the desirable range 6.5 – 8.0 units however have been less than desirable in the past.
- **RECOMMENDED ACTIONS:** Bertrand Brook conductivity and chloride levels decreased greatly in 2013 and we hope to see this continue! Generally water quality is good, however the increased frequency and intensity of storm events highlights the importance of managing stormwater runoff from lake and water residents, dirt/gravel roads, and steep slopes. Maintaining vegetated buffers between shorelines and the pond and tributaries helps to capture and infiltrate stormwater runoff before it reaches waterways which reduces nutrients, sediment and other pollutants. DES' "Homeowner's Guide to Stormwater Management" is a great resource for lake residents. Keep up the great work!

Table 1. 2013 Average Water Quality Data for LOON POND

Station Name	Alk.	Chlor-a	Chloride	Cond.	Total P	Trans.	Turb.	pH
	mg/l	ug/l	mg/l	uS/cm	ug/l	m	ntu	
						NVS		
Bertrand Brook			6	47.3	11		0.66	6.60
Epilimnion	6.25	2.49	18	85.9	7	6.03	0.46	6.82
Metalimnion				86.2	7		0.67	6.69
Hypolimnion				85.6	13		1.37	6.50
Gardner Cove Inlet			28	120.7	21		2.64	6.46
Outlet In Stream				86.0	6		0.59	6.77
Varney Brook			4	37.0	13		0.74	6.60

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Stable	Trend not significant; data show low variability.	Chlorophyll-a	Stable	Trend not significant; data moderately variable.
Conductivity	Stable	Trend not significant; data highly variable.	Transparency	Stable	Trend not significant; data moderately variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data show low variability.